

REMARKS

The Applicants request reconsideration of the rejection.

Claims 26-41 are pending.

The Applicants request acknowledgement of the claim for priority in this case. The priority document was filed at the International Phase of the parent case, U.S. Serial No. 09/503,739.

Claims 26-41 were rejected under 35 USC 112, second paragraph, as being indefinite. Specifically, the Examiner finds that the expression $\text{Real}(1/q_7) = 0$ is inoperative, and thus "disallowed". The Applicants, however, provide the following explanation in hopes that the Examiner will have a better understanding of the expression in the context of the invention, and thus find it to be both operative and definite.

The Applicants refer to the specification beginning on page 10, line 8, with specific reference to page 11, line 23 through page 12, line 20. Equation 13 on page 11 of the specification is also found in the second paragraph of each of the independent claims, and defines a q-parameter in terms of the beam radius at the position i and radius of curvature R_i of a wave front at a position i. As noted, the small q-parameter has a Real component $(\frac{1}{q_i} = \frac{1}{R_i} - j\frac{\lambda}{\pi w_i^2})$ and an imaginary component

$-j\frac{\lambda}{\pi w_i^2}$). As noted in the specification on page 12, lines 2 through 12, and in accordance with the derivation set forth in the independent claims, the beam parameter on an arbitrary plane 7 (q_7) can be calculated in accordance with known precepts, resulting in equation 14 on page 12 of the specification, which also appears in the final paragraph of each of the independent claims. Of importance to the present rejection is that the q-parameter at the arbitrary plane (q_7) is given by the expression $q_7 = \frac{Aq_1 + B}{Cq_1 + D}$ and the arbitrary plane is a focusing point "when Real ($1/q_7$) = 0 is satisfied". In other words, the invention is limited by requiring that the q-parameter q_7 has the given expression when the Real component of $1/q_7 = 0$.

By known mathematics, the Real component of $1/q_7 =$ can be shown to go to 0. In accordance with the expression

$$\frac{1}{q_i} = \frac{1}{R_i} - j\frac{\lambda}{\pi w_i^2} \quad (\text{equation 13}), \text{ the Real component goes to 0 as } R_i$$

goes to infinity. In other words, at the arbitrary plane 7, the Real component goes to 0 as R_7 goes to infinity. This is desirable because at $R_7 = \text{infinity}$, the light comes into focus on the arbitrary plane 7 in the gain crystal 14. As set forth

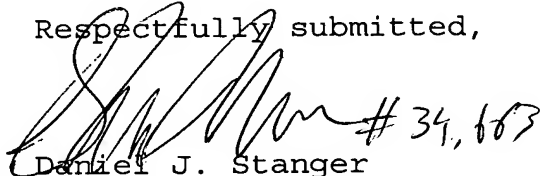
in the specification, page 12, lines 13-20, the plane of $R_7 =$
infinity is changeable by the position and angle of the lens

31. When the plane of $R_7 =$ infinity coincides with the
focusing point in the cavity made with respect to both the
sagittal and tangential planes, the parameters are achieved
for a stigmatism compensation of the pumping light.

It is noted that the Examiner appears to have some difficulty in understanding the Applicants' intended meaning for Real $1/q_7 = 0$. It may be helpful to remember that the
parameter q_7 is not a simple number, but is a function of many
variables. The equation Real $1/q_7 = 0$ is used to determine the
values of those variables. Therefore, the form of $1/0$ feared
by the Examiner will not actually occur. In fact, it can be
shown that when Real $1/q_7 = 0$, it is also true that Real $(q_7) =$
 0 . Accordingly, if the Examiner remains uncomfortable with
the claimed expression, the Applicants offer to amend the
claims to recite the limitation that "Real $(q_7) = 0$ " instead.

In view of the foregoing explanation, the Applicants believe that the application is now in condition for allowance and request the Examiner to pass the application to issue.

Respectfully submitted,

 # 34,683
Daniel J. Stanger
Registration No. 32,846
Attorney for Applicant(s)

MATTINGLY, STANGER & MALUR, P.C.
1800 Diagonal Road, Suite 370
Alexandria, Virginia 22314
Telephone: (703) 684-1120
Facsimile: (703) 684-1157
Date: August 8, 2003